

Appl. No. 10/066,458
Amdt. dated 7/16/2004
Reply to Office Action of April 23, 2004

PATENT

REMARKS/ARGUMENTS

Claims 1-5, 7, and 8 were pending in this application. Claims 1-5, 7, and 8 were rejected.

Claims 2-7 and 9-10 have been canceled. Claims 1 and 8 have been amended. No new matter has been added to the amended claims.

Claims 1 and 8 remain pending in this application after entry of this amendment. Reconsideration of the amended claims is respectfully requested.

Section 112 Rejection of Claims 5, 7, and 8

Claims 5, 7, and 8 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In rejecting independent claim 5, the Examiner states "applicant should clarify what is intended by 'and said gas is an inert gas, a global warming coefficient of which gas is rated 1 or below.'"

Claims 5 and 7 have been canceled without prejudice.

Claim 8 has been rewritten as an independent claim and no longer depends upon the specific claim language cited by the Examiner above. For example, amended claim 8 recites "said inert gas is rated 1 or below" rather than "which gas is rated 1 or below." Therefore, Applicants respectfully submit that the Section 112 rejection of claim 8 is overcome.

Section 102(b) Rejection of Claims 1-2, 4 and 5

Claims 1-2, 4 and 5 were rejected under 35 U.S.C. § 102(b) as being anticipated by Izuna et al., JP Patent No. 10-189348 (hereinafter "Izuna").

Claims 2, 4, and 5 have been canceled without prejudice.

Claim 1 has been amended to recite, in part, "wherein said gas is applied pressure at less than 0.2975 Mpa (2kg/cm²G) to be sealed in said tank." Support for this amendment is provided, for example, on page 8, lines 19-22 of the original disclosure.

The English translation of the Izuna Abstract states that the Izuna reference shows a molded transformer comprising an amorphous core 5, a molded resin coil 4, and an enclosed inert gas 11.

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Izuna does not teach or suggest that pressure be applied to the enclosed inert gas. Izuna fails to disclose a transformer "wherein said gas is applied pressure at less than 0.2975 Mpa (2kg/cm²G) to be sealed in said tank," as recited in amended claim 1. Claim 1 is allowable for at least this reason.

Section 103(a) Rejection of Claims 3, 7, and 8

Claims 3, 7, and 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Izuna. In rejecting these claims, the office action stated that "Izuna et al. discloses the instant claimed invention except for the specific inert gas and specific pressure for the inert gas. The specific inert gas and specific pressure used would have been an obvious design consideration based upon the intended applications and operating environment."

As noted above, claims 3 and 7 have been canceled without prejudice.

The Applicants respectfully disagree with the rejection of claim 8.

Claim 8 has been rewritten in independent form. Claim 8 now recites, in part, "A self-cooled insulation transformer comprising ... an inert gas that is filled in said tank as an insulating and cooling medium, wherein a global warming coefficient of said inert gas is rated 1 or below ... and wherein said gas is applied pressure at 150.358 kPa or below so as to be sealed in said tank."

Prior art gas insulation transformers commonly use SF₆ gas as the insulating medium because of its high dielectric strength. However, SF₆ also has a high global warming coefficient and thus poses a significant environmental hazard. With the configuration recited in claim 8, an inert gas with a global warming coefficient "rated 1 or below" (such as N₂ or CO₂) can effectively replace SF₆ as the insulating medium.

For example, Figure 5 of the present application shows that there is little relative difference in the initial voltage of partial discharge between SF₆ and N₂ when the applied pressure is less than 0.2 Mpa. Accordingly, an environmentally safe gas insulation transformer can be realized.

Izuna does not address the problem solved by the present invention. The English abstract of Izuna merely states a molded transformer that "can make any rust preventing

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treatment unnecessary, has an extremely simple constitution, does not require any large space, and can be used outdoors."

Applicants respectfully submit that use of an inert gas "wherein a global warming coefficient of said inert gas is rated 1 or below," at an "applied pressure of 150.358 kPa or below," as recited in amended claim 8, would not be obvious in light of Izuna.

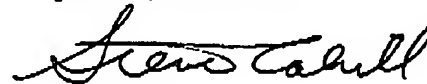
For at least the foregoing reasons, Applicants respectfully submit that amended claim 8 is novel and nonobvious over the cited prior art.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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